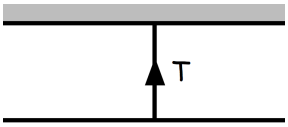
Corbettmaths

Moments - Suspended Rods

Mechanics

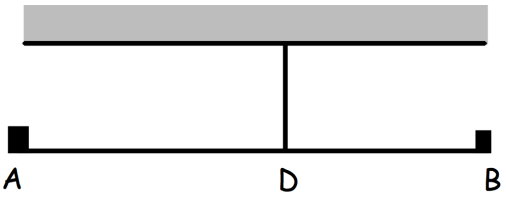
Video Tutorial

When suspended from the ceiling by a string, the tension in the string will be T.

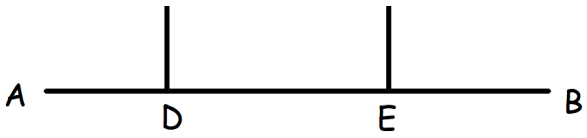


A uniform rod, AB, has a length of 5m and mass of 10kg.
The rod attached to the ceiling by a light inextensible string.
The string is attached to the rod at point D.
A 15kg mass is attached to the rod at A and a 25kg mass is attached to the rod at B.

(a) Find the tension in the string
(b) Find the distance BD.

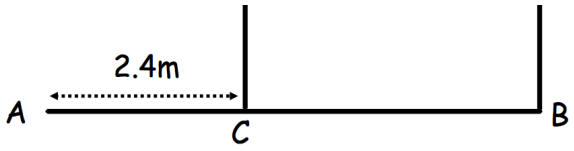


A uniform rod, AB, has a length of 4m and mass of 6kg.
The rod is held in equilibrium by two vertical wires.
The wires are attached to the rod at points D and E, where AD = 0.8m and DE = 2m
Calculate the tension in each wire.



A steel beam, AB, has a mass of 35kg.
The beam is held in equilibrium by two vertical ropes, attached at C and B, where AC = 2.4m
The beam is modelled as a uniform rod and the ropes as light inextensible strings.
The tension in the rope at C is three times the tension in the rope at B.

Find the length of the beam.



A uniform rod, AB, has a length of 10m and mass of 20kg.
The rod is held by two vertical cables.
The wires are attached to the rod at points D and E, where AD = 2m and BE = 3.5m
A M kg mass is placed on the rod at F, such that the rod is on the point of turning about D, where AF = 1m

(a) Find the tension in the cable at D.
(b) Find M

